

**ABSTRACT**

**OXIDATION PROCESS FOR THE PRODUCTION OF ALKENES AND  
CARBOXYLIC ACIDS**

A process for the oxidation of a C<sub>2</sub> to C<sub>4</sub> alkane to produce the corresponding alkene and carboxylic acid which process comprises contacting in an oxidation reaction zone, said alkane, molecular oxygen-containing gas, and the corresponding alkene and optionally, water, in the presence of at least one catalyst active for the oxidation of the alkane to the corresponding alkene and carboxylic acid, to produce a product stream comprising alkene, carboxylic acid and water, wherein in said process the molar ratio of alkene to carboxylic acid produced in said oxidation reaction zone is adjusted or maintained at a pre-determined value by controlling the concentrations of the alkene and optional water in said oxidation reaction zone and optionally by also controlling one or more of the pressure, temperature and residence time of the oxidation reaction zone. Such an oxidation process may be used in an integrated process, such as for the manufacture of vinyl acetate or ethyl acetate.